

IN THE CLAIMS

Please replace the claims now on file with the following claims.

1-215. (Canceled)

216. (Currently Amended) A diffractive multifocal intraocular lens defining an optical axis, said diffractive multifocal intraocular lens comprising:

a first surface and a second surface, said second surface opposing said first surface, said first surface having a first shape and said second surface having a second shape;

wherein said first surface includes a diffractive pattern imposed on [[a]] said first shape;

wherein said first surface and said second surface result in a base focus and an additional focus; [[and]]

wherein at least one of said first shape and said second shape has an aspheric component;
and

wherein said diffractive pattern is symmetric about said optical axis.

217. (Currently Amended) The lens of claim 216 wherein said at least one of said first shape and said second shape that has said aspheric component is [[a]] prolate [[shape]].

218. (Previously Presented) The lens of claim 216 wherein said aspheric component reduces spherical aberration of a wavefront that passes through said lens.

219. (Currently Amended) The lens of claim 218 wherein said lens is structured so that, when said wavefront is represented as a series of Zernike polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said lens.

220. (Previously Presented) The lens of claim 219 wherein said series of Zernike polynomials comprises up to at least fourth order terms.

221. (Previously Presented) The lens of claim 216 wherein said lens comprises at least one of a silicone, a hydrogel, and an acrylate.

222. (Previously Presented) The lens of claim 216 wherein the same surface defines both said aspheric component and said diffractive pattern.

223. (Previously Presented) The lens of claim 216 wherein an add power for said additional focus is between 2 and 6 diopters.

224. (Previously Presented) The lens of claim 216 wherein an add power for

said additional focus is 3 to 4 diopters.

225. (Previously Presented) The lens of claim 216 wherein a light distribution between said base focus and said additional focus is between 70%:30% to 30%:70%.

226. (Previously Presented) The lens of claim 216 wherein a light distribution between said base focus and said additional focus is 50%:50%.

227. (Currently Amended) The lens of claim 216[[],] wherein one of said first shape and said second shape is spherical.

228. (Previously Presented) The lens of claim 216 wherein said lens is designed to reduce wavefront aberrations of light passing into the eye when said lens has replaced a natural lens of an eye.

229. (Previously Presented) The lens of claim 216 having a base power of 18 diopters.

230. (Previously Presented) The lens of claim 216 having a diameter of 6 millimeters.

231. (Previously Presented) The lens of claim 216 having a thickness of 1.1 millimeters.

232. (Currently Amended) The lens of claim 216 wherein ~~the first and second surfaces said first surface and said second surface each~~ have radii of curvature between 12 and 13 millimeters.

233. (Currently Amended) The lens of claim 216[[],] wherein said lens is designed to replace a natural tense lens of an eye.

234. (New) The lens of claim 216 wherein said lens has a negative spherical aberration.

235. (New) The lens of claim 216 wherein said at least one of said first shape and said second shape that has said aspheric component has a negative spherical aberration.

236. (New) The lens of claim 216 wherein said at least one of said first shape and said second shape that has said aspheric component has a curvature at a periphery thereof that is less than a curvature at said optical axis.

237. (New) The lens of claim 216 wherein said at least one of said first shape

and said second shape is prolate.

238. (New) The lens of claim 216 wherein said at least one of said first shape and said second shape that has said aspheric component is characterized by a mathematical model that includes at least one of (1) terms of a conoid of rotation and (2) terms of a conoid of rotation and at least one polynomial term.

239. (New) The lens of claim 238 wherein said terms of said conoid of rotation includes a conic constant that is less than zero.

240. (New) The lens of claim 238 wherein said terms of said conoid of rotation includes a conic constant that is less than minus one.

241. (New) The lens of claim 216 wherein said at least one of said first shape and said second shape that has said aspheric component is a modified conoid surface.

242. (New) The lens of claim 216 wherein said at least one of said first shape and said second shape is characterized by a mathematical model that includes terms of a conoid of rotation and a polynomial term.

243. (New) The lens of claim 242 wherein said lens is structured so that, when said wavefront is represented as a series of Zernike polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said lens.

244. (New) A diffractive multifocal intraocular lens defining an optical axis, said diffractive multifocal intraocular lens comprising:

a first surface and a second surface, said second surface opposing said first surface, said first surface having a first shape and said second surface having a second shape;

wherein said first surface includes a diffractive pattern imposed on said first shape;

wherein said first surface and said second surface result in a base focus and an additional focus;

wherein at least one of said first shape and said second shape has an aspheric component;

wherein said first shape is symmetric about said optical axis; and

wherein said second shape is symmetric about said optical axis.

245. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape that has an aspheric component is prolate.

246. (New) The lens of claim 244 wherein said lens is structured so that said aspheric component reduces spherical aberration of a wavefront that passes through said lens.

247. (New) The lens of claim 246 wherein said lens is structured so that, when said wavefront is represented as a series of Zernike polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said lens.

248. (New) The lens of claim 247 wherein said series of Zernike polynomials comprises up to at least fourth order terms.

249. (New) The lens of claim 244 wherein said lens comprises at least one of a silicone, a hydrogel, and an acrylate.

250. (New) The lens of claim 244 wherein the same surface defines both said aspheric component and said diffractive pattern.

251. (New) The lens of claim 244 wherein an add power for said additional focus is between 2 and 6 diopters.

252. (New) The lens of claim 244 wherein an add power for said additional focus is 3 to 4 diopters.

253. (New) The lens of claim 244 wherein a light distribution between said base focus and said additional focus is between 70%:30% to 30%:70%.

254. (New) The lens of claim 244 wherein a light distribution between said base focus and said additional focus is 50%:50%.

255. (New) The lens of claim 244 wherein said lens has a negative spherical aberration.

256. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape that has said aspheric component has a negative spherical aberration.

257. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape that has said aspheric component has a curvature at a periphery thereof that is less than a curvature at said optical axis.

258. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape is prolate.

259. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape that has said aspheric component is characterized by a mathematical model that includes at least one of (1) terms of a conoid of rotation and (2) terms of a conoid of rotation and at least one polynomial term.

260. (New) The lens of claim 259 wherein said terms of said conoid of rotation includes a conic constant that is less than zero.

261. (New) The lens of claim 259 wherein said terms of said conoid of rotation includes a conic constant that is less than minus one.

262. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape that has said aspheric component is a modified conoid surface.

263. (New) The lens of claim 244 wherein said at least one of said first shape and said second shape is characterized by a mathematical model that includes terms of a conoid of rotation term and a polynomial term.

264. (New) The lens of claim 263 wherein said lens is structured so that, when said wavefront is represented as a series of Zernike polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said lens.